ZooKeys 31: 221–228 (2009)
doi: 10.3897/zookeys.31.171
www.pensoftonline.net/zookeys

RESEARCH ARTICLE

A peer-reviewed open-access journal
ZooKeys
Launched to accelerate biodiversity research

Mammalian fauna of the Termessos National Park, Turkey

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Academic editor: *E. Neubert, Z. Amr* | Received 14 April 2009 | Accepted 28 August 2009 | Published 28 December 2009

Citation: De Marinis AM, Masseti M (2009) Mammalian fauna of the Termessos National Park, Turkey. In: Neubert, E, Amr, Z, Taiti, S, Gümüs, B (Eds) Animal Biodiversity in the Middle East. Proceedings of the First Middle Eastern Biodiversity Congress, Aqaba, Jordan, 20–23 October 2008. ZooKeys 31: 221–228. doi: 10.3897/zookeys.31.171

Abstract

The National Park of Termessos, Southern Turkey, is one of the Turkey's biggest national park not only with its archeological richness but also with its great natural wild life. We provided a checklist of the mammalian fauna of the park on the base of direct observations, interviews and a comparative analysis of the available literature. Sixteen species have been reported in the park. Hedgehogs, hares, porcupines and Persian squirrels and, among flying mammals, Egyptian rousette and Mouse-eared bat have been recorded. Carnivores are represented by Golden jackal, Wolf, Red fox, Stone marten, Badger, Otter and Wild cat. Very recently (2005) the presence of the Caracal in the park has been confirmed, whereas no signs of the presence of the Lynx were detected. The last Anatolian leopards seems to have definitively disappeared from the region. The occurrence in the area of striped hyaenas and brown bears is documented up to a few decades ago. The Park is regarded as the only geographical range in the whole world where the European or Common fallow deer has persisted as a native form. Other ungulates too, such as Wild goat and Wild boar are dispersed within the boundary of the park. Management implications are discussed.

Keywords
Mammals, conservation, southern Turkey.

Introduction

The National Park of Termessos is located in the Beydağlari mountains, which are part of the Taurus, 34 km north-west of the town of Antalya, within the borders of Antalya province in south-western Turkey (lat. 37°00'N, long. 30°31'E), and covers an area

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an area of 6,702 ha. Its highest peak is Eren Tepe (1.665 m a.s.l.). Due to the geographical location and the elevational range, temperature and precipitation vary a lot (Sert and Erdoğan 2004). The Termessos National Park was established in 1970 (Kasparek and Kasparek 1990). It comprises the ruins of the ancient city of Termessos located on Güllük Dağı (1,100 m a.s.l.). It is one of Turkey's most important national parks, on account not only of its archeological riches but also the extensive range of its natural wild life, due to the great variety of habitats (*cf.* Alçitepe 1999). A recent study carried out on the avifauna of the area revealed the occurrence of 113 species of forest and mountain birds, belonging to 32 families (Sert and Erdoğan 2004). The mammalian fauna of the area is also among the richest and most varied in Turkey.

We provide an overview of the mammalian species occurring in the Park or that have recently disappeared with particular reference to conservation problems.

Materials and methods

Data on mammal presence were gathered from direct observations (sightings, field signs such as footprints and scats, and dead specimens) during transect surveys carried out between 1994 and 2007, as well as from examination of the specimens in the collection of the museum of the Termessos National Park (hereinafter MTNP), and a comparative analysis of the available literature. Data were also gathered from interviews to local people, hunters and national park personnel.

Results

In the course of this study, the occurrence of 16 species of mammals within the perimeter of the Termessos National Park was reported (Table 1). Carnivores are the main component of the mammalian fauna of the park in terms of species number (50%) and are followed by ungulates (19%).

Carnivores are represented by large predators as golden jackals and wolves, medium-sized predators as red foxes, badgers, otters, wild cats and caracals, and small predators as beach martens. In particular for the Caracal, in the course of this research, one museum specimen (without catalogue number) was examined in the MTNP. According to Kasparek and Kasparek (1990) this specimen was killed shortly before the park was set up, and hence around the end of the 1960s. Observations carried out during the second half of the 1990s attested the predation of this species upon *C. aegagrus*, probably as a consequence of the accidental death of an adult female of wild goat (Masseti 2000). Recently, the occurrence of the species was confirmed by a camera trapping campaign carried out in two phases: early July – end of August 2005, and mid-October – end of December 2005 (Giannatos et al. 2006). Anatolian specimens are referred to *Caracal caracal schmitzi* Matschie, 1912, which on average is smaller

Table 1. Checklist of the mammals reported in the course of the present study from the area of the Termessos National Park, Antalya (Turkey). MPNT: museum of the Termessos National Park.

Species	**References**
1. Southern white breasted hedgehog *Erinaceus concolor* Martin, 1838	Kryštufek and Vohralík 2001; MPNT; *present work*
2. Egyptian rousette *Rousettus aegyptiacus* (E. Geoffroy, 1810)	Uğurluai 2005
2. Mouse-eared bat *Myotis myotis* (Borkhausen, 1797)	Uğurluai 2005
3. Persian squirrel *Sciurus anomalus* (Gueldenstaedt, 1785)	Tortonese 1948; MPNT; *present work*
4. Indian crested porcupine *Hystrix indica* Kerr, 1792	Kumerloeve 1967
5. Brown hare *Lepus europaeus* Pallas, 1778	Tortonese 1948; MPNT
6. Golden jackal *Canis aureus* Linnaeus, 1758	Tortonese 1948; Turan 1984
7. Wolf *Canis lupus* Linnaeus, 1758	Tortonese 1948; MPNT
8. Red fox *Vulpes vulpes* (Linnaeus, 1758)	Tortonese 1948; Albayrak and Erdoğan 2005; MPNT
9. Beach marten *Martes foina* (Erxleben, 1777)	Tortonese 1948; Kumerloeve 1967; MPNT; *present work*
10. Eurasian Badger *Meles meles* (Linnaeus, 1758)	Tortonese 1948; Kumerloeve 1967; Albayrak and Erdoğan 2005; MPNT
11. Eurasian Otter *Lutra lutra* (Linnaeus, 1758)	Thol-Schmitz 2004; MPNT
12. Wild cat *Felis silvestris* Schreber, 1777	Kumerloeve 1967
13. Wild boar *Sus scrofa* Linnaeus, 1758	Albayrak and Erdoğan 2005; MPNT
14. Wild goat *Capra aegagrus* Erxleben, 1777	Üstay 1990; Masseti 2009; MPNT; *present work*

than *C. c. caracal* (Schreber, 1776) and has a paler pelage colour (Kumerloeve 1975; Harrison and Bates 1991).

Always using camera traps, Albayrak and Erdoğan (2005) and Giannatos et al. (2006) confirmed the occurrence of other carnivores within the area of the National Park, such as the Red fox and the Badger. Wild boars were also detected by the use camera traps (Albayrak and Erdoğan 2005; Giannatos et al. 2006). During the present research it was also possible to observe several specimens of the latter species, which were killed on the Beydağlari in May 1989.

The other ungulates recorded in the park are the Wild goat and the Fallow deer.

As mentioned above, the National Park was set up in 1970, and one of its specific objectives was to protect the wild goats. As a result, by 1975 the population of this ungulate had again risen to 1.200 individuals (Kasparek and Kasparek 1990). Personal observations carried out directly in the field, starting in 1994 and for much of the decade, made it possible to confirm the abundance of these animals on various occasions, at least up until about ten years ago. Today, however, the wild goats are in decline and now fewer than 100 individuals appear to have survived. The main reason for this decline is to be attributed to poaching.

Today the only known surviving population of Fallow deer in Turkey is that preserved in the enclosed area of Düzlerçami, which was established within the larger context of the Termessos National Park in the second half of the nineteen-sixties (Heidemann 1976, 1986; Masseti 1999, 2007a). However, the results of the last census of the deer population revealed the occurrence of only a couple of dozen individuals within the fenced area, possibly not more than 22 specimens (Masseti 2007a, Masseti 2007b, Masseti et al. 2008). Even in the hypothesis that some animals managed to elude the count and the census results could be considered an underestimate by as much as 10–20%, we would still not be talking about more than 30 deer. These 30 or so animals apparently represent the entire surviving native population of the Fallow deer of continental Asia Minor, with all the possible consequences of genetic drift for this stock.

Among Rodentia just two species were reported in the course of the present study (*Sciurus anomalus* and *Hystrix indica*) such as among Chiroptera (*Myotis myotis* and *Rousettus aegyptiacus*). Only one species was recorded respectively for the taxonomic groups of Erinaceomorpha (*Erinaceus concolor*) and Lagomorpha (*Lepus europaeus*).

Despite the fact that in the brochures advertising the park the lynx is indicated as one of the carnivores most widespread within the perimeter of the Termessos region, according to a recent study carried out by Giannatos et al. (2006), no signs of the presence of this animal were detected in the area: "*It seems unlikely that the few lynx reported by foresters, professional hunters and locals to occur in the cedar forests more than 60 km south-west of the study area could have reached Güllük Dağı. They would have to cross barren high mountains and extensive alpine areas occupied during the summer by nomad shepherds and their large dogs and covered in winter by heavy snow. Additionally, there are only very few lynx occurring in the whole region*" (Giannatos et al. 2006). Therefore this species is not included in the checklist reported in Table 1.

Table 2. Carnivores that have recently disappeared from the area of the Termessos National Park. MPNT: museum of the Termessos National Park.

Species	Presumable date of disappearance	References
Brown bear *Ursus arctos* Linnaeus, 1758	late 1970s?	MPNT
Striped hyena *Hyaena hyaena* (Linnaeus, 1758)	late 1960s	Kasparek et al. 2004; MPNT

Three other carnivores used to be part of the mammalian fauna of Termessos National Park, have recently disappeared from the area (Table 2): Brown bear, Striped hyena, and Asia Minor leopard.

On display at the MTNP is one bear canine, without any catalogue number. It was found in a cave of the Beydağlari area, presumably around 1978 (Table 2). According to the data recorded by Can (2001) and Togan (2004), bears still occur in the National Park of Olympos, south-west of the town of Antalya, but no longer survive within the perimeter of the Termessos National Park. According to Harrison and Bates (1991), the subspecies occurring in the area should be referred to the Syrian brown bear, *U. arctos syriacus* Hemprich and Ehrenberg, 1828.

Turan (1969) reported that in the Beydağlari Mountains the last hyena was seen in 1953. The skull of one specimen, with two emi-mandibles, is on display at the MTNP (cat. no. 245), and was collected from a cave in the park (Güllük Dağõ) probably in the early 1980s (Table 2; Kasparek et al. 2004). This information, *fide* Masseti, probably refers to a cave at Tepe Nin Dag Usu, Mecene Redisire Dagh (Güllük Dağõ), but the name of the locality is possibly misspelled. Local people, directly contacted in the course of this research, observed that they remembered hyenas living there up to the late 70s – early 80s. However, according to Ö. Emre Chan, WWF Turkey (2005, *in verbis*), the species survived in this area only up to the late 1960s. The latter also states that the MTNP skull was collected in 1955–1960, and was probably brought to the cave by a leopard.

Up until recently the Termessos area, together with a few other parts of Lycia, was reputed to be the last western Anatolian stronghold of the Asia Minor Leopard, which was presumed to have vanished from this region before the late 1970s (cf. Mendelssohn 1989; Kasparek and Kasparek 1990; S. Güsar 1997, *in verbis*). Despite certain claims that the *taxon* is extinct, there are nevertheless rumours that some may have survived (Ulrich and Riffel 1993; Jackson 1994). Riffel (1990) was the first to suggest that *P. p. tulliana* had not disappeared. During a number of visits to south-western Anatolia between 1985 and 1992, new information was obtained by the two German biologists, Ulrich and Riffel. The finding of fresh faecal pellets in the spring of 1992 indicated the

survival of the species in the Temessos National Park (Ulrich and Riffel 1993). Recent reports of leopards are not restricted to the Termessos area, but have also come from the south of the Lycian peninsula and the environs of the town of Alanya: a leopard was shot near Kas in 1989 and a sighting of one specimen in the vicinity of Alanya was reported in 1991. In the light of these data, it would appear that a scattered population of the Asia Minor leopard exists in eastern Lycia and in parts of western Lycia, between Finike, Antalya and Alanya and other areas to the west of Lycia (Ulrich and Riffel 1993; Jackson 1994; Ulrich 1994). However, according to Giannatos et al. (2006), no signs of the presence of leopards were detected in the course of a recent study carried out within the borders of the Termessos National Park: leopards were unknown to all the local people, hunters and national park personnel interviewed during the study, and all were agreed on the fact that these felids became extinct a long time ago.

Concluding remarks and management implications

As already noted, the mammalian fauna of the National Park of Termessos is one of the richest and most varied of Turkey. Even though it would appear that the lynx never existed here, and that the last leopard disappeared from the park some time ago (see Can 2004; Giannatos et al. (2006), the region nevertheless must still be regarded as one of the most important areas for larger mammals in Anatolia. It could still be inhabited by some of the last individuals of the west-Anatolian striped hyena (see Kasparek et al. 2004), and currently represents one of the last strongholds of the westernmost Turkish diffusion of the Caracal. It is also the only site in which Fallow deer today survive in continental Anatolia. Effectively, the National Park of Termessos has to be considered as the only area in the whole world where the cervid has persisted as a native form (cf. Heidemann 1976, 1986; Masseti 2007b; Masseti et al. 2008). The small population of Termessos can be regarded as virtually extinct and in the light of this the survival of these deer consequently becomes charged with a significance which is historic and archaeological, as well as biological, ecological and environmental. Their protection and their study can provide an opportunity for testing a range of different evolutionary theories. Nor should we overlook the fact that they constitute the only available points of reference for an understanding of the biological and ecological characteristics of their ancestors, by now long extinct.

We suggest that future research should focus on:

- data collection on presence/absence of mammal species to complete the mammal checklist with particular reference to shrews, hedgehogs, rodents and bats, and to generate maps with grid for species distribution mapping;
- census of wild goats, fallow deer and caracals to monitor their populations year after year and to gather data on their population dynamics.

The survival of the mammals of the National Park of Termessos, will depend on continuing and rigorous protection.

Acknowledgments

We are particularly grateful to Tamer Albayrak and Ali Erdoğan, Akdeniz Üniversitesi Fen-Edebyat Fakültesi Biyoloji Bölümü, Antalya; Batur Avgan, Ankara; Özgün Emre Can, WSPA and WWF Turkey, Ankara; Yusuf Cengiz, Forest Research Institute, Antalya; Giorgos Giannatos, Dept. of Zoology-Marine Biology, University of Athens; Süleiman Kaçar, Bati Akdeniz Ormancilik, Arastirma Mudurlugu, Antalya; Süleiman Karakaya and Kaan Karakaya, Shikar Safaris (Antalya/Mannheim); Halil Saribşak, and Tuğrul Şahin, Termessos National Park and Düzlerçami Wildlife Reserve, Environment and Forest Department of Antalya; Bruno Zava, Wilderness-studi ambientali, Palermo.

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